

WHAT IS CLAIMED IS:

1. A method for forwarding a packet upstream from a subscriber unit to a central access point, the packet including destination information and source information, the method comprising:

determining a first value associated with the packet, the first value being one of a predetermined set of values, wherein the first value is determined using the destination information and the source information;

identifying a first service flow that is suitable for use to forward the packet, the first service flow being one of a set of service flows between the source and the destination, wherein the first service flow is identified using the first value associated with the packet; and

sending the packet on the first service flow.

2. The method of claim 1 wherein determining the first value associated with the packet includes:

applying a hash function to the destination information and the source information; and

generating the first value using the hash function, wherein the first value is a hash value.

3. The method of claim 2 wherein the first value is associated substantially only with the first service flow, and wherein substantially any packet which is associated with the first value is sent through the first service flow.

4. The method of claim 1 further including:
assigning the first value to the first service flow.

5. The method of claim 1 wherein the destination information is a destination Internet Protocol (IP) address and the source information is a source IP address.

6. The method of claim 1 wherein the central access point is a headend

7. The method of claim 6 wherein the subscriber unit and the headend are associated
5 with a Data Over Cable Service Interface Specifications (DOCSIS) protocol.

8. The method of claim 1 wherein the subscriber unit is a cable modem and the
central access point is a cable modem terminating system, and wherein the cable modem
and the cable modem terminating system are associated with a DOCSIS protocol.

10 9. The method of claim 1 wherein the set of service flows includes up to
approximately sixteen service flows.

10. The method of claim 1 wherein the packet is part of a session, the session
15 including multiple packets, wherein each packet of the multiple packets is associated with
the first value and is sent on the first service flow.

11. A method for forwarding packets upstream from a subscriber unit to a central
access point, the method comprising:

20 identifying a number (N) of available service flows between the subscriber unit
and the central access point;

sending a first packet from the subscriber unit to the central access point on a first
service flow included in the N available service flows; and

25 sending an Nth packet from the subscriber unit to the central access point on an
Nth service flow included in the N available service flows.

12. The method of claim 11 further including:

sending an (N-1)th packet from the subscriber unit to the central access point on
an (N-1)th service flow included in the N available service flows; and

sending a second packet from the subscriber unit to the central access point on a second service flow included in the N available service flows, wherein the second packet is substantially in sequence behind the first packet and before the (N-1)th packet and Nth packet.

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13. The method of claim 12 further including:

sending an $(M*N+1)$ th packet from the subscriber unit to the central access point on the first service flow, wherein M is a positive integer; and

10 sending an $(M*N)$ th packet from the subscriber unit to the central access point on the Nth service flow.

14. The method of claim 11 wherein the central access point is a headend

15 15. The method of claim 14 wherein the subscriber unit and the headend are associated with a DOCSIS protocol.

16. The method of claim 11 wherein the subscriber unit is a cable modem and the central access point is a cable modem terminating system, and wherein the cable modem and the cable modem terminating system are associated with a DOCSIS protocol.

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17. A device for forwarding a packet upstream to a central access point, the packet including destination information and source information, the device comprising:

25 means for causing a first value associated with the packet to be determined, the first value being one of a predetermined set of values, wherein the means for causing the first value to be determined include means for causing the destination information and the source information to be used;

means for causing a first service flow that is suitable for use to forward the packet to be identified, the first service flow being one of a set of service flows between the source and the central access point, wherein the means for causing the first service flow

to be identified include means for causing first service flow to be identified using the first value associated with the packet; and

means for causing the packet to be sent on the first service flow.

5 18. The device of claim 17 wherein the means for causing the first value associated with the packet to be determined include:

means for causing a hash function to be applied to the destination information and the source information; and

10 means for causing the first value to be generated using the hash function, wherein the first value is a hash value.

19. The device of claim 18 wherein the first service flow is associated with the first value, wherein substantially any packet which is associated with the first value is sent through the first service flow.

15 20. The device of claim 17 wherein the device is one of a subscriber unit that supports a DOCSIS protocol and a cable modem that supports the DOCSIS protocol.

20 21. The device of claim 17 wherein the device is one of a subscriber unit and a cable modem.

22. A device for forwarding packets upstream to a central access point, the device comprising:

25 means for causing a number (N) of available service flows to the central access point to be identified;

means for causing a first packet to be sent to the central access point on a first service flow included in the N available service flows; and

means for causing an Nth packet to be sent to the central access point on an Nth service flow included in the N available service flows.

23. The device of claim 22 further including:

means for causing an (N-1)th packet to be sent to the central access point on an (N-1)th service flow; and

5 means for causing a second packet to be sent to the central access point on a second service flow, wherein the second packet is substantially in sequence behind the first packet and before the (N-1)th packet and Nth packet.

24. The device of claim 23 further including:

10 means for causing a an (M*N+1)th packet to be sent to the central access point on the first service flow, wherein M is a positive integer; and

means for causing sending an (M*N)th packet to be sent to the central access point on the Nth service flow.

15 25. The device of claim 22 wherein the device is one of a subscriber unit that supports a DOCSIS protocol and a cable modem that supports the DOCSIS protocol.

26. The device of claim 22 wherein the device is one of a subscriber unit and a cable modem.

20 27. A device for forwarding packets to a central access point, the device comprising: a routing component;

a hashing component, the hashing component being arranged to apply a hash function to information associated with a first packet to determine a value, wherein the routing component is arranged to provide the information associated with the first packet to the hashing component; and

25 a first service flow identifier, the first service flow identifier being associated with the value, wherein the hashing component provides the packet to the first service flow identifier.

28. The device of claim 27 wherein the service flow identifier is arranged to cause the packet to be forwarded on a service flow associated with the service flow identifier.

29. The device of claim 27 further including a second service flow identifier, wherein the second service flow identifier is associated with a different value and the hashing component is arranged to select the first service flow identifier using the value.

30. The device of claim 27 wherein the information includes destination information and source information associated with the packet.

31. The device of claim 27 wherein the device is one of a subscriber unit and a cable modem.

32. A device for forwarding packets to a central access point, the device comprising:
a receiving component, the receiving component being arranged to receive a plurality of packets that are to be forwarded to a central access point;
a plurality of service flow identifiers which are associated with a plurality of service flows; and
a routing component, the routing component being arranged to receive the plurality of packets from the receiving component; the routing component further being arranged to provide a plurality of packets to the plurality of service flow identifiers on a substantially round-robin basis.

33. The device of claim 32 wherein the routing component is further arranged to provide a first packet of the plurality of packets to a first service flow identifier of the plurality of service flow identifiers and to provide an Nth packet of the plurality of packets to an Nth service flow identifier of the plurality of service flow identifiers.

34. The device of claim 33 wherein the plurality of packets includes a second packet, the second packet being received by the receiving component between the first packet

and the Nth packet, and wherein the routing component is further arranged not to provide the second packet to either the first service flow identifier or the Nth service flow identifier.

5 35. The device of claim 33 wherein the plurality of packets includes an (N+1)th packet and an (N+N)th packet, wherein the routing component is further arranged to provide the (N+1)th packet to the first service flow identifier and the (N+N)th packet to the Nth service flow identifier.

10 36. The device of claim 32 wherein the device is one of a subscriber unit and a cable modem.